31 May 1963

Dear John,

As you requested, we have assembled some data and schedules on the subject of P-Model (Type II B) use in the I vehicle. A brief summary of the situation could be stated in three sentences:

1. Previous results in this vehicle were good enough to make such a test desirable.

2. The hardware is all available, and in fact might be idle until hot-testing starts.

3. The conversion to the I vehicle could be accomplished in 3 - 4 weeks time.

RESULTS:

A copy of a report on previous "A" tests in the I vehicle is attached. This report is the best summary of the photographic portion of the tests and shows average results of 78 to 90 lines per millimeter. At this K factor, 86 lines would give 1.5 foot ground resolution. The vehicle pitch oscillation discussed in the report is known to contribute some degradation. You will recall that these tests, and any proposed flights, would be unstabilized and hence results would depend on the vehicle stability. In spite of this, the equipment has logged enough hours in the I vehicle to demonstrate with confidence that adequate stability is present a very large portion of the time.

As you may recall, the complete "A" test series consisted of 21 flights, exposed over 102,000 feet of material or 32,156 frames. Of these, only 250 frames were lost from malfunction and the remaining 99.3% of the material was usable.

STATUS:

The Type II configuration is currently at [redacted] and should be returned here for changing gears and cams to accommodate the lower V/H of the I vehicle. A schedule is attached showing that the equipment could be available for shipment to a new location 25 days from authorization. 25X1A

The lower hatch and mounting hardware are at [redacted] shop and have been put in sotrage, available for use at any time. 25X1A

REQUIRED CHANGES:

Because of the lower V/H requirement, two modifications to the drive systems of the configuration are necessary. Such modifications will be performed at E.K. facilities.

1. Replace the number one and two drive gears in the drive system of each unit with "special" set of gears to obtain platen velocity compatible with V/H of the I vehicle.

2. Replace the Type II A Model panoramic sweep cam with the Type II B Model cam. This involves interchanging the sweep mirrors, realigning the sweep mirrors to the cam axes, and aligning each sweep mirror with respect to the twisting mirror and platen.

In addition to the above changes, a check of the existing P-Model wiring is required in order to obtain electrical interface compatibility with the I vehicle and control boxes. Wiring changes will be required for step focus tests.

ADDITIONAL TESTS:

After the changes are accomplished we would recommend at least one flight to check focus and performance. Assuming no difficulties the unit would then be available for your use.

ADDITIONAL FACTORS:

To complete the picture it should be remembered that:

1. The P-Model was conceived as a flyable breadboard and some operational refinements (e.g. ease of servicing) are lacking in its design.

2. It will be isolated but unstabilized, and past results indicate that the output will be useful but not optimum if the vehicle attitude is rough.

3. This additional activity will consume some man power and compete on some facilities (e.g. the collimator) that would otherwise be used on the F-Model which is now in test. However, the F-Model schedule does not appear too critical from our present viewpoint. You are, of course, in a better position to evaluate that.

4. Some facilities for loading and servicing would be required at the "test site". The room at [redacted] shop was very satisfactory.

25X1A

5. The auto focus would not be required in the cooler environment.

6. The V/H would be pre-programmed only, and would not be automatic in following terrain variations.

7. Exposure control would also be pre-programmed.

In conclusion it appears that use of the P-Model in the I vehicle, would present no problems that have not been faced and solved before. Satisfactory interfaces exist for space, weight, power, environment, and V/H range. Attitude could provide occasional degrading smear. We would be happy to work in this direction if you desire. If you have further questions, please call.

W. R. E.